RIFLE CALIBER EXPLOSIVE CARTRIDGES

By CHARLES H. YUST, JR.

RIFLE-caliber explosive cartridges form a very interesting group which it is quite possible for anyone to add to his collection. It is only necessary that extreme caution be practiced when encountering any cartridges of which there is the slightest doubt as to identity, especially those that have unusual-appearing bullets.

While explosive cartridges are safe enough to have in a collection, the nature of this type of ammunition must always be borne in mind, along with the possible effects of time.

Never probe bullets

Some of this class are of hollow- or open-point type. Never, under any circumstances, thrust any object down this opening. Never use pliers or other tools on bullets that have copper or lead tubes in the nose, or use tools on those with mechanisms, such as the U. S. Spot-Light types or the Austrian Anti-Balloon Round.

Do not drop explosive cartridges. While they are intended to withstand ordinary handling in the field, age may have had a deteriorating effect on some of the components, and a drop may be enough to explode them. Also, do not use an inertia-type bullet puller—the blows could be enough to actuate the mechanism.

Some collectors like to section bullets to study their construction. Unless you are well versed in such procedure and have the proper safety equipment, confine this sectioning to the large variety of inert-type bullets. Those who like to shoot should refrain from firing explosive cartridges.

The Argentine 7.65 mm. Type R high-explosive cartridge (**Fig. 1**) is identified by a black bullet tip and black primer annulus. Bullet jacket is cupro-nickel clad steel. The round was manufactured for Argentina by Hirtenberg Patronenfabrik in Austria.

So far as known to this writer, Austria had in service 4 types of explosive cartridges for 8x50R Mannlicher rifles and machine guns. All these were used in World War I, and one of them was introduced as far back as 1910.

Explosive cartridges Model 1910 and Model 1914 (**Fig. 2**) are known as *Einschusspatronen* (sighting cartridges), intended for observing point of impact, supposedly in training. They were manufactured at the government arsenal at Wellersdorf.

These are very hard to distinguish from the ordinary ball round as the bullet has the same general shape. For identification a colored band was placed around the cartridge case just below the shoulder. However, this band could be worn off. If the bullets are removed from the case, it will be noted that they are considerably longer than the ordinary ball bullet.

The Model 1910 cartridge has a red band around the cartridge case. The bullet jacket is gilding metal, but coated so that it looks like the ordinary steel-jacketed ball bullet. The portion of the bullet seated below the case mouth was not coated. The base of the bullet is marked $\frac{\text{Ü}}{12}$. The explosive in this cartridge consists of potassium chlorate and antimony sulphide.

Model 1914 cartridge

The Model 1914 cartridge has a black band, and the bullet jacket is steel. The nose of this bullet has a small, flattened projection which is also an aid in identification. Base of the bullet is marked $\frac{\text{Ü}}{14}$. The explosive is compressed blackpowder mixed with aluminum.

The third cartridge in the Austrian series is known as an air burst shrapnel (**Fig. 3**). It appears to have been introduced later in World War I, because the cartridge is headstamped 1917. It can be identified by the flat-nose, hollow-point bullet. The mouth of the cartridge case is crimped. In 1917 a crimp to hold the bullet more tightly was included for use in machine guns.

The last of the Austrian cartridges is known as an anti-balloon round. There were 2 patterns, which at first glance look alike as they have practically the same external dimensions. The first pattern (**Fig. 4**) is headstamped "1915" and the bullet length is 1.425". The cartridge case is not crimped to hold the bullet. The second pattern is headstamped "1916" and the bullet length is 1.305". The cartridge case is crimped to the bullet. Shape of the case for this round is slightly different from that of other 8x50R Mannlicher rounds. It is still 50 mm. long, but the neck was made longer by shortening the shoulder, to give more bearing surface around the bullet. It is not known certainly if this cartridge was intended for use in rifles, in machine guns, or both. The first time this writer saw such cartridges they were loaded in a number of regular Mannlicher rifle clips.

There are 2 patterns of spot-light cartridges in 8 mm. Lebel. The first pattern has a hollow lead-pointed insert in the bullet nose (**Fig. 5**). The explosive must be sensitive, as it detonates on impact. The second pattern (**Fig. 6**) has an unusual appearance. The explosive is placed in the cavity in the bullet nose and the cavity soldered closed.

The cartridge cases were made by Remington Arms-Union Metallic Cartridge Co., at their Swanton, Vt., plant. The bullets were altered from the regular solid *Balle D*. The first pattern was altered and loading completed at Frankford Arsenal; it is not known where the second pattern was completed.

Three German explosive types follow. A 7.92x57 mm. explosive round was introduced during World War I (**Fig. 7**) which, at first glance, could be mistaken for the old Model 1888 round-nosed ball cartridge. However, the bullet has a hollow point and the bullet

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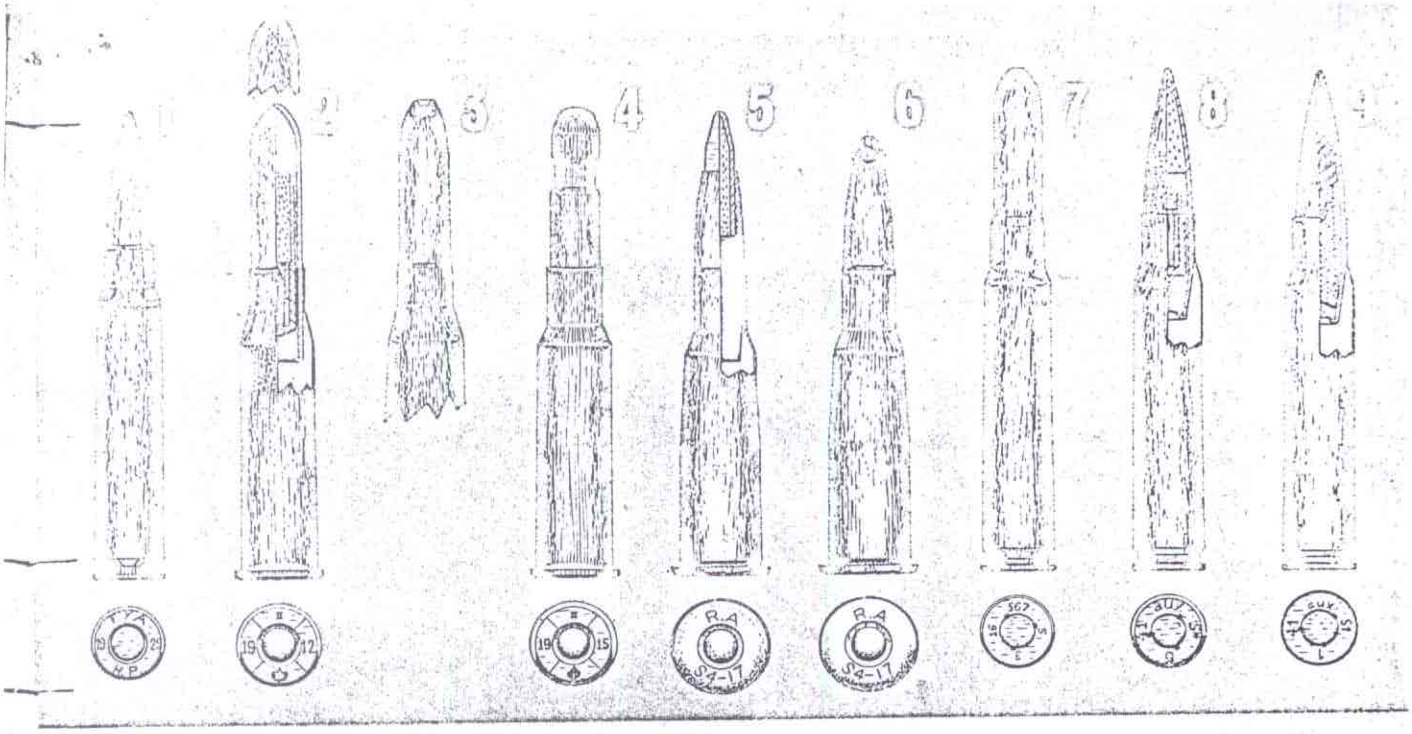
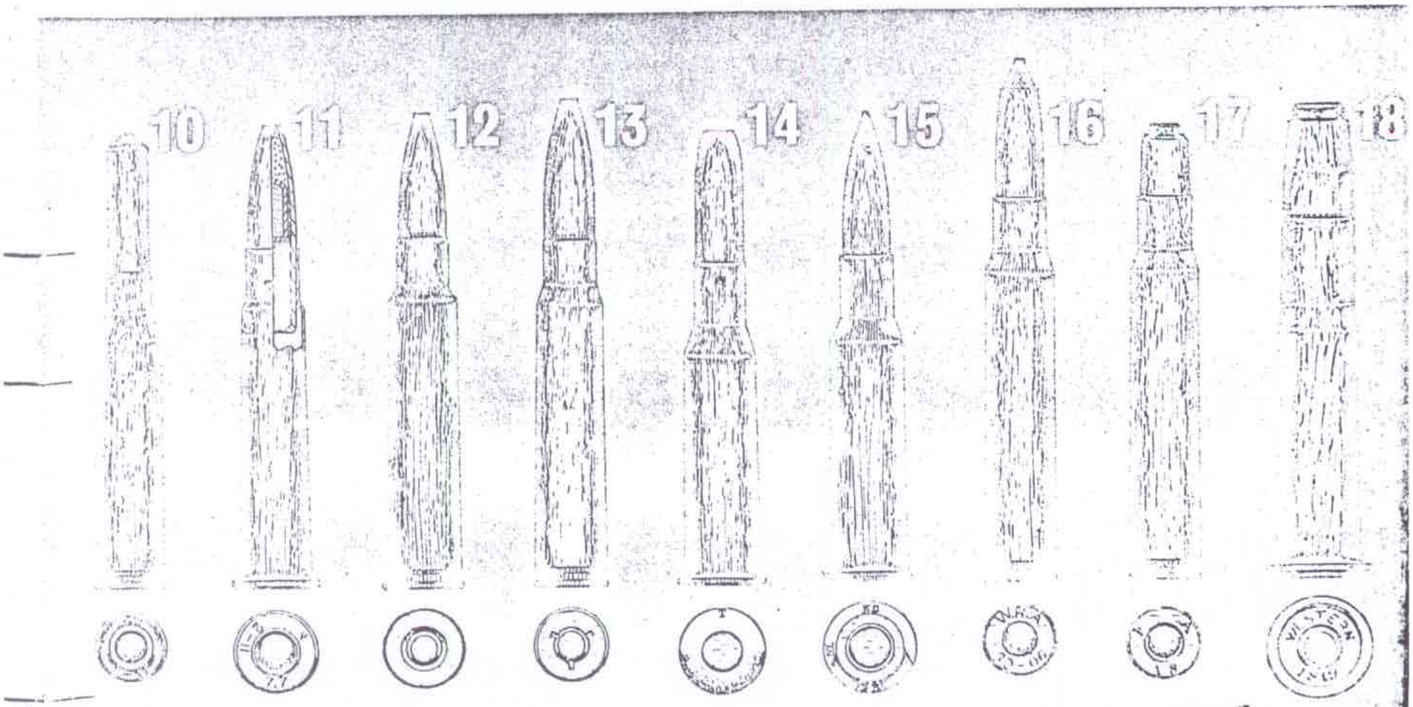


FIGURES

1 Argentine 7.65 mm. Type R High Explosive Cartridge
2 Austrian Sighting Cartridges. (at top) Model 1914. (below) Model 1910
3 Austrian Air Burst Shrapnel Cartridge (bullet only)
4 Austrian Anti-Balloon Cartridge
5 8 mm. Lebel 'Spot-Light' Cartridge, first pattern
6 8 mm. Lebel 'Spot-Light' Cartridge, second pattern
7 German 7.92x57 mm. Explosive Cartridge, World War I
8 German 7.92x57 mm. *B-Patrone* Observation Cartridge
9 German 7.92x57 mm. "S.m.K. L'spur Ub. m.Z." (Practice Ball with Steel Core and Self-Destroying Tracer)
10 Italian 6.5 mm. Explosive Cartridge
11 Japanese Navy 7.7 mm. Rimmed Explosive Cartridge
12 Japanese Army 7.7 mm. Semi-Rimmed Explosive Cartridge
13 Japanese Army 7.92x57 mm. Explosive Cartridge
14 Imperial Russian 7.62 mm. Explosive Cartridge
15 Soviet Russian 7.62 mm. Explosive Cartridge
16 U. S. .30 Gov't M1906. H.E. 'Pomeroy' Explosive Cartridge
17 U. S. .30 Gov't M1906, H.E. 'Spot-Light', Experimental Cartridge
18 U. S. 11 mm. Machine Gun, H.E. 'Spot-Light', Experimental Cartridge



jacket is uncoated steel. Most rounds found today will probably show signs of rust. There should be a black primer annulus, but this could be worn away.

Shortly before World War II, the Germans adopted an explosive incendiary cartridge known as the *B-Patrone*, or observation cartridge **(Fig. 8).** On German ammunition charts and lists, it was always included with training cartridges and not with Service cartridges. The bullet jacket is gilding-metal-clad steel. Inside the nose was a compartment filled with white phosphorus. This was followed by a lead sheath which contained a detonator backed by a firing pin. There is a lead plug in the base of the bullet. There is no weep hole leading to the phosphorus as in a regular incendiary bullet.

Rounds of early manufacture had a chrome-tipped bullet for identification, then a silver-tipped bullet. The last, and most often seen, had the lower portion of the bullet stained black leaving the tip unmarked. Additional marks may be encountered, such as a thin green band near the point which indicates a high-velocity round; or a lacquered band at case mouth (very hard to see) which indicates tropical loading; or both. This bullet was loaded into brass and steel cases. The primer annulus was black.

There was another training cartridge employed by the Germans that contained an explosive element. This was known as "S.m.K. L'spur Ub.m.Z.", which can be broken down to mean, "Practice Ball with Steel Core and Self-Destroying Tracer" **(Fig. 9).** The bullet has the usual gilding-metal-clad steel jacket. The jacket contains a lead sheath, carrying a short steel point. Behind this is a container which tapers into a teat that contains an explosive, behind this another container with tracing mixture. This bullet explodes when the teat end of the explosive container, as a result of burning of the tracer, transmits the heat through the thin wall of the teat to the explosive.

This round is identified by about ¾ the distance from the point of the bullet to the case mouth being blackened. These bullets also were loaded into brass and steel cases.

Italian explosive cartridge

An explosive cartridge was manufactured in Italy during World War I for Italian 6.5 mm. weapons **(Fig. 10).** It is not hard to identify due to the unusual shape of the cupronickel jacketed bullet, which also has a small hollow point. Inside is an explosive charge and detonator backed by a firing pin.

Japan had a series of explosive rifle-caliber cartridges, all with the characteristic that the bullet had a flat nose.

The Japanese Navy 7.7 mm. rimmed cartridge **(Fig. 11)** was for use in Naval aircraft machine guns and ground machine guns. It could also be used in British .303 rifles and machine guns, because it had the same external dimensions as the British .303 cartridge. The bullet of the explosive round had a cupronickel jacket. The front compartment inside the nose contained cyclonite and PETN. To the rear of this is a gilding-metal cup filled with aluminum and cyclonite, or alternatively aluminum and TNT. This is backed by a lead plug. This is the general arrangement of the whole series of Japanese explosive bullets of rifle caliber. The primer annulus is violet.

The Japanese Army 7.7 mm. semi-rimmed explosive round **(Fig. 12)** has a flat-nosed, gilding-metal-jacketed bullet. There was a black identifying band around the case mouth. It has also been reported that there was an explosive round with the 7.7 mm. rimless cartridge series. This would look like Fig. 12, except for a smaller case head.

There was an explosive round of the Japanese Army 7.92x57 mm. cartridge **(Fig. 13).** This has a flat-nosed, gilding-metal-jacketed bullet, and there was a white identifying band around the mouth.

Russian explosive cartridge

Imperial Russia had an explosive cartridge for 7.62 mm. rifles and machine guns **(Fig. 14).** This cupronickel jacketed bullet has a flat nose with broad and shallow hollow point. The copper detonator container is visible. There is a firing pin and explosive included.

Soviet Russia also had an explosive incendiary cartridge in the same caliber **(Fig. 15).** The front of the bullet contained thermite powder, followed by a lead sheath containing a detonator backed by a firing pin. A lead plug is in the base. The gilding-metal-clad, steel-jacketed bullet was pointed just like the ball bullet. This cartridge was identified by a red or red-and-green bullet tip. Cartridge cases were either brass or copper-coated steel.

The rifle-caliber explosive round was also attempted by the United States.

A .30 Gov't M1906, H. E. 'Pomeroy' cartridge **(Fig. 16)** was made by Winchester for the Government. The bullet had a pointed copper tube inserted in the front end, which contained an explosive. This can be identified by the shape of the point and its green tip.

The last 2 cartridges are the U. S. .30 Gov't M1906 H. E. Spot-Light round **(Fig. 17)**, and the 11 mm. Machine Gun H. E. Spot-Light round **(Fig. 18).** These are quite easy to identify by the unusual appearance of the bullet. Both were experimental. □

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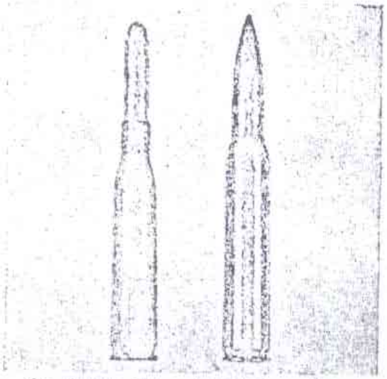
6.5X58 "P" CARTRIDGE

Please identify a rimless bottleneck rifle cartridge marked "DWM 457" and "K" ("K" on either side of head). This cartridge is about cal. .25, has a long tapered case shoulder, and a long round-nose bullet. To what rifle is it adapted?—S.C.

Answer: The cartridge is a commercial version of the 6.5 mm. Portuguese cartridge made in Germany by DWM. It is commonly called 6.5x58 Mauser or 6.5x58 "P" (case length is 58 mm.). "K" is for Karlsruhe, where the DWM ammunition plant is located, and "457" is the DWM identification number for this cartridge.



6.5x58 "P" (L.) and .30-'06 cartridges

This cartridge is adapted to the 6.5 mm. Portuguese Mauser-Vergueiro Model 1904 military rifle and to 6.5x58 Oberndorf Mauser sporting rifles. Its long round-nose bullet weighs 155 grs., and the muzzle velocity with 25.6" barrel is 2568 f.p.s. (feet per second).—L.O.

SILENCERS

How do rifle silencers work, and how effective are they? Why are they not generally used?—D.E.V.

Answer: One of the very first successful firearm silencers was developed by Hiram Percy Maxim, a member of the famous American family of inventors.

Silencers operate by trapping the powder gases at the muzzle and releasing them over a little time. While this time is very short, it is enough to lower and lengthen the pressure peak of the escaping gases, thus largely doing away with the resultant sharp report. Maxim originally believed that for effectiveness the gases had to be given a whirling motion through passages around the inside of the silencer, and his first successful silencer was designed on this basis. Experience showed that this was not necessary, the requirement for effectiveness being only that the gas escape slowly. The principle is exactly the same as that of the internal combustion engine muffler. Of course, there must be a hole through the device in the projectile's path.

Trapping the muzzle gases and releasing them over a little time results in slowing them. The force required to do this necessarily involves an equal and opposite forward reaction force on the firearm, decreasing the recoil. A silencer thus acts also as a muzzle brake.

A good silencer can be remarkably effective in muffling the escaping gases. It may even eliminate nearly all noticeable sound from a small powder charge, leaving only the sound of the gun hammer or striker and of the bullet impact on the target to be heard. The silencer has, however, some major limitations.

One of the greatest is that while noise from the powder gases leaving the muzzle can be muffled, nothing can be done to silence the loud crack made by projectiles passing through the air at speeds higher than that of sound. Even at transonic speeds the projectile makes a considerable noise. The effectiveness of silencers is therefore limited to guns firing projectiles well below the speed of sound.

Silencers are less than effective on revolvers because they do nothing to muffle the gas escaping at the cylinder joint. They are also ineffective on those self-loading arms which open while there is still some pressure in the barrel, since both gas from the opening breech and also the moving mechanism make a noise.

There are also the disadvantages of a device attached to the gun muzzle, where weight and bulk are most inconvenient.

Some United States patents which have been issued on silencers are Nos. 880.386; 1,018.720; 1.207.264; 1.259.251; 1,482.805.

The silencer was given a military application during World War I, when a sniper model of the M1903 Springfield rifle was made with a Maxim silencer and a Warner & Swasey telescope sight. The rifle was very awkward, partly because of the silencer and partly because of the telescope sight design, and there was of course the inability to silence the bullet crack which has been explained above.

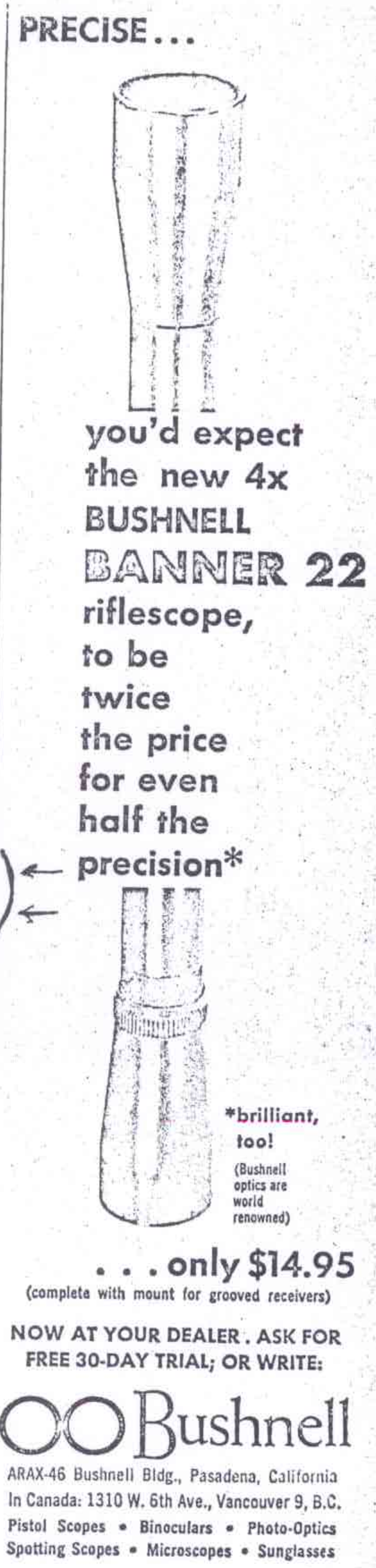
Silencers were employed during World War II on some small weapons used by various nations for semi-military purposes. These were classified, and no detailed information is available on them.

Silencers for sporting guns were produced by the former Maxim Silencer Co. over a period of many years. There appears to have been a rather steady demand, but never a very great one. That company discontinued the manufacture of silencers about 1925 as being unprofitable. Manufacture was then taken up by 2 or 3 small manufacturers, but without much success.

Now the only known source of gun silencers is Parker-Hale Ltd., Whittall Street, Birmingham 4, England. Parker-Hale calls these devices sound moderators, and manufactures them for cal. .22 weapons only.

The most important limiting factor is now the regulation of silencers by law. The National Firearms Act includes silencers among the weapons and devices which must be registered with the Alcohol and Tobacco Tax Division of the Internal Revenue Service, with payment of a tax of $200. Payment of $200 tax must be repeated at each transfer of the item. Also a tax of $200 must be paid by the maker (other than established firearms manufacturers, who are licensed separately) on each such item made. Also there are restrictive state laws on silencers.

Because of the severe regulation of these devices, THE AMERICAN RIFLEMAN has not developed information or data on making firearms silencers.—E.H.H.



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